

REMARKS

This Amendment, submitted in response to the Office Action dated March 25, 2003, is believed to be fully responsive to each point of rejection raised therein. Accordingly, favorable reconsideration on the merits is respectfully requested.

As a preliminary matter, Applicant requests the Examiner to acknowledge consideration of the references submitted with the Information Disclosure Statement and Supplemental Information Disclosure Statement filed in the application and resubmits the PTO 1449 Forms in connection with the acknowledgment.

Turning to the merits of the Office Action, claims 1-36 remain pending in the application. The Examiner has rejected claims 17 and 18 as being indefinite under 35 U.S.C. § 112, second paragraph, for describing a composition by a trade name rather than by its chemical formula and for referring to Figures. Claim 17 has been amended to include the chemical formulae for chemicals represented by a trade name. Claim 18 has been amended to include the features of Figs. 20-A-20L. No new matter or issues are raised by the modifications as they describe explicitly what was previously inherent in the claims.

Claims 1-36 are further rejected under 35 U.S.C. § 112, first paragraph, due to apparent overbreadth. In particular, the Examiner contends that the specification describes an analyte dependent fluorophore having an ns decay time and a reference fluorophore having a longer microsecond delay time. Claims 1, 2, 6, 10, 14, 16, 23-28, and 31-35 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Lacowicz (U.S.P. 5,246,867). Applicant submits the following comments in traversal of the Section 112 (first paragraph) and prior art rejections.

With regard to the Section 112, first paragraph rejection, Applicant would submit that at a minimum, claims 7 and 8 describe the relative decay times and thus meet all requirements of Section 112. With regard to the remaining claims, Applicant would submit that the Examiner is impermissibly requiring Applicant to claim the exemplary embodiment of the invention, which is not a requirement for purposes of meeting Section 112. In this connection, Applicant refers the Examiner to MPEP 2164.08(c) which indicates that preferred characteristics need not be claimed. The Examiner's citations to pages 3 and 5 of the specification do not give rise to the purportedly criticality of the features. Additional aspects of the invention include the separation of fluorophores used in detection and the use of non-changing lifetimes in analyzing a concentration of an analyte. The claimed decay times merely reflect preferred, as opposed to required, features.

With regard to the prior art rejections, Applicant would note that the present invention relates to determination of concentrations of analytes using apparatus with a low modulation frequency. The sensing fluorophores used have lifetimes on the order of ns, and which need not display a change in lifetime in response to the analyte. As an additional feature, in the exemplary embodiment, a reference fluorophore having a lifetime on the order of microseconds can be dispersed or held adjacent to the analyte sample containing the sensing fluorophore. The modulation result of the two fluorophores at a prescribed frequency permits detection of the analyte concentration.

The cited Lacowicz patent describes measuring the concentration of saccharides by application of a donor-acceptor pair. The donor is bound to a carrier and the acceptor and any glucose present in the sample compete for binding sites on the carrier. Energy transfer between

the donor and acceptor produces a detectable lifetime change of the fluorescence of the donor and the change is reduced or eliminated by the competitive bonding of the glucose in the sample under study. Col. 1, lines 45-60. Significantly, the donor must be insensitive to glucose or it will interfere with the competitive bonding. Col. 5, lines 34-37.

Applicant would submit that the Examiner has fundamentally misapplied the Lacowicz reference for at least the following three reasons.

First, independent claim 1 describes measurements of concentration of an analyte as they relate to emissions by a first and second fluorophore. The cited Lacowicz patent relates to a different form of analysis using donor-acceptor pairs and competitive bonding in a sample.

Second, as a related matter, it is not clear from Lacowicz that the patent includes absorption of light by the first fluorophore, providing emitted light and the emitted light irradiating a second fluorophore. Rather, in the Lacowicz patent, the light intensity reduces in connection with competitive bonding of the acceptor and saccharide and a change in fluorescent lifetime. Col. 6, line 1.

Third, claim 1 specifically describes that light absorbed by the first fluorophore is sensitive to the concentration of analyte. The Examiner contends in the rejection that the donor (purportedly corresponding to the first fluorophore) is responsive to the analyte. Detailed Action, page 4, lines 1-3. The Examiner appears to have misread the reference, which describes that the donor must not be sensitive to the analyte (saccharide) which is being quantified. Col. 5, lines 34-35. To the extent any glucose sensitive fluorophores may be present in the Lacowicz patent, the emissions and radiative effects of the second fluorophore are not taught.

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Therefore, for at least the above fundamental reasons, the anticipation rejection of claim 1 is improper and claim 1 and its dependent claims are all patentable for at least the reasons set forth above.

With further regard to at least claims 3-5, 7-9, 11-13, 15, 17-22 and 29-30, the Examiner has offered no prior art rejection of these claims and thus these claims should be deemed allowable.

Claim 37 is added to include both aspects of the relative decay times of the invention, and claims 38-42 are added to describe features deemed allowable by the Examiner, as set forth at paragraph 6 of the detailed Office Action and also to describe aspects of the invention more particularly.

In view of the above, Applicant submits that claims 1-42 are in condition for allowance. Therefore it is respectfully requested that the subject application be passed to issue at the earliest possible time. The Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary.

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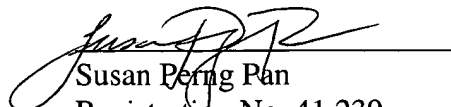
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